

ORIGINALLY FILED

OIPE

RAW SEQUENCE LISTING

17 <170> SOFTWARE: FastSEQ for Windows Version 4.0

PATENT APPLICATION: US/09/923,844

DATE: 08/16/2001 TIME: 12:54:02

Input Set : A:\Seqlist.txt

Output Set: N:\CRF3\08162001\1923844.raw

## RRORED SEQUENCES

|                     | 128 | <21                   | 0> s | EQ I              | D NO        | : 2   |     |       |             |       |     |       |          |     |     |       |        |  |  |
|---------------------|-----|-----------------------|------|-------------------|-------------|-------|-----|-------|-------------|-------|-----|-------|----------|-----|-----|-------|--------|--|--|
|                     | 129 | 129 <211> LENGTH: 371 |      |                   |             |       |     |       |             |       |     |       |          |     |     |       |        |  |  |
|                     | 130 | <21                   | 2> T | YPE:              | PRT         |       |     |       |             |       |     |       |          |     |     |       |        |  |  |
| 131 <213> ORGANISM: |     |                       |      | Helianthus annuus |             |       |     |       |             |       |     |       |          |     |     |       |        |  |  |
| 133 <400> SEQUENCE: |     |                       |      |                   |             |       |     |       |             |       |     |       |          |     |     |       |        |  |  |
|                     | 134 | Met                   | Glu  | Phe               | Leu         | Lys   | Ala | Pro   | Thr         | Leu   | Leu | Leu   | Val      | Ile | Phe | Ser   | Leu    |  |  |
|                     | 135 | 1                     |      |                   |             | 5     |     |       |             |       | 10  |       |          |     |     | 15    |        |  |  |
|                     | 136 | Ala                   | Ile  | Cys               | Ser         | Pro   | Ile | Ser   | Ala         | Gln   | Asn | Lys   | Gly      | Gly | Tyr | Trp   | Pro    |  |  |
|                     | 137 |                       |      |                   | 20          |       |     |       |             | 25    |     | _     | _        | -   | 30  | •     |        |  |  |
|                     | 138 | Ser                   | Trp  | Ala               | Gln         | Asp   | Phe | Leu   | Pro         | Pro   | Ser | Asn   | Ile      | Gln | Thr | Ala   | Tyr    |  |  |
|                     | 139 |                       |      | 35                |             |       |     |       | 40          |       |     |       |          | 45  |     |       | _      |  |  |
|                     | 140 | Phe                   | Thr  | His               | Val         | Tyr   | Tyr | Ala   | Phe         | Leu   | Ser | Pro   | Asn      | Asn | Val | Thr   | Phe    |  |  |
|                     | 141 |                       | 50   |                   |             |       |     | 55    |             |       |     |       | 60       |     |     |       |        |  |  |
|                     | 142 | Gln                   | Phe  | Asp               | Val         | His   | Arg | Thr   | Thr         | Ala   | Ser | Ala   | Leu      | Asn | Ser | Phe   | Asn    |  |  |
|                     | 143 |                       |      |                   |             |       | 70  |       |             |       |     | 75    |          |     |     |       | 80     |  |  |
|                     | 144 | Thr                   | Ala  | Leu               | His         |       | Lys | Asn   | Pro         | Pro   |     | Lys   | Thr      | Leu | Phe | Ser   | Ile    |  |  |
|                     | 145 | _,                    |      |                   |             | 85    |     |       |             |       | 90  |       |          |     |     | 95    |        |  |  |
|                     | 146 | Gly                   | Gly  | Gly               | Ser         | Ala   | Gly | Val   | Lys         |       | Leu | Phe   | Ser      | Lys | Leu | Ala   | Ser    |  |  |
|                     | 147 | _                     | _    |                   | 100         |       |     |       |             | 105   |     |       |          |     | 110 |       |        |  |  |
|                     | 148 | Ser                   | Pro  | Gly               | Ser         | Arg   | Ala | Ala   |             | Ile   | Arg | Ser   | Thr      |     | Gln | Val   | Ala    |  |  |
|                     | 149 | <b>3</b>              |      | 115               | re.         |       | _   |       | 120         |       |     |       |          | 125 |     |       |        |  |  |
|                     | 151 | Arg                   | ASD  | Tyr               | Tyr         | Phe   | Asp |       | Ala         | Asp   | Leu | Asp   |          | Glu | Tyr | Pro   | Glu    |  |  |
|                     |     | mh =                  | 130  | m la sa           | <b>&gt;</b> | M = 4 | •   | 135   | <b>5</b> .1 | - 1   | _   | _     | 140      |     | _   |       |        |  |  |
|                     | 153 | 1/15                  | GIII | Thr               | ASP         | met   | 150 | ASN   | Pne         | GIA   | Leu |       | Leu      | Asp | Glu | Trp   |        |  |  |
|                     |     |                       | λla  | Ual               | Man         | Nan   |     | 1 1 a | mh m        | C     | m b | 155   | <b>.</b> | _   | _   |       | 160    |  |  |
|                     | 155 | Val                   | Ald  | Val               | ASII        | 165   | GIU | Ald   | 1111        | ser   |     | GIY   | rys      | Pro | Arg |       | Leu    |  |  |
|                     |     | Len                   | Ser  | Ala               | Δla         |       | λησ | uic   | Clu         | Dro   | 170 | Wal   | N        | N a |     | 175   | 77 - 1 |  |  |
|                     | 157 | LCu                   | JCI  | niu               | 180         | 1111  | Aly | піз   | Gru         | 185   | GIU | val   | AIG      | ASP | 190 | GIA   | val    |  |  |
|                     | -   | Ala                   | Lvs  | Tyr               |             | Val   | Δla | Ser   | Tlo         |       | Lve | λen   | Lou      | λαη |     | Tlo   | ) an   |  |  |
|                     | 159 |                       | -10  | 195               |             | . • 1 |     | J. 1  | 200         | 11011 | шуз | 11311 | neu      | 205 | GTÅ | rre   | MSII   |  |  |
|                     |     | Ala                   | Met  | Cys               | Tvr         | Asp   | Tvr | His   |             | Pro   | Trp | Thr   | Pro      |     | Δla | Thr   | Gly    |  |  |
|                     |     |                       |      | 4                 | 1           | 1     |     |       | 1           |       | r   | ~     |          | .15 |     | * 117 | GTA    |  |  |

sil 4

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PATENT APPLICATION: US/09/923,844 Input Set : A:\Seqlist.txt Output Set: N:\CRF3\08162001\1923844.raw 161 210 215 162 Ala Pro Ala Ala Leu Tyr Asn Pro Asn Gly Ser Leu Ser Thr Ser Asn 230 235 164 Gly Leu Gln Ser Trp Ile Ser Ala Gly Ile Gln Arg Gln Lys Leu Val 250 166 Met Gly Met Pro Leu Tyr Gly Trp Thr Trp Lys Leu Lys Asn Pro Ser 265 260 168 Val Asn Gly Ile Gly Ala Pro Ala Ala Gly Ile Gly Pro Gly Asn Glu 280 169 275 170 Gly Ala Met Leu Tyr Ser Glu Val Gln Gln Phe Asn Ala Gln Asn Asn 295 300 172 Ala Arg Val Val Tyr Asp Thr Gln Thr Val Ser Tyr Tyr Ser Tyr Ser 315 310 174 Gly Thr Thr Trp Ile Gly Tyr Asp Asp Val Asn Ser Val Gln Arg Lys 330 325 176 Val Gln Tyr Ala Lys Ser Leu Asn Ile Gly Gly Tyr Phe Phe Trp Thr E--> 177 Ala Val Gly Asp Gln Asp Trp Lys 340 345 221 <210> SEQ ID NO: 4 222 <211> LENGTH: 97 223 <212> TYPE: PRT 224 <213> ORGANISM: Helianthus annuus 226 <400> SEQUENCE: 4 227 Met Lys Ala Pro Thr Met Ile Cys Phe Leu Val Ala Val Ile Ala Ala see P.4 229 Met Met Val Phe Met Gly Gln Leu Pro Ala Ala Thr Ala Val Thr Cys 20 25 231 Asn Tyr Met Glu Leu Val Pro Cys Ala Gly Ala Ile Ser Ser Ser Gln 40 35 233 Pro Pro Ser Gly Ser Cys Cys Ser Lys Val Arg Glu Gln Arg Pro Cys 55 235 Phe Cys Gly Tyr Leu Arg Asn Pro Ser Leu Arg Gln Phe Val Ser Pro E--> 236 80 Ala Ala Ala Gln Lys Ile Ala Ser 70 75 238 <210> SEQ ID NO: 5 239 <211> LENGTH: 849 240 <212> TYPE: DNA 241 <213> ORGANISM: Helianthus annuus 243 <400> SEQUENCE: 5 244 cgtcgtttcg cttgcagggg gataaaagat aatatcatga tcaccattca \*tcacgcctaa 120 245 aattoctoot ottagtoaat tgtgaatatt ttgtaattat tgtgtagaot ataactgtta 246 tgtctttgca tatatttctc cttgtaatta gccttgtatt ccagtatata atgatatcaa 180 240 247 aactetetaa teaageagag agagtteeet gaattacate aeegetgeea tittagteea 300 248 ctaaqttaac ttcatccatt aattttgtta acgtgaaagg aaattcggtc attttctatg 249 gccgaattgc ccttgtagtt cacaaaatta catataaaac caccgaattg ccgttctcgt 360 250 taacagaaaa aatgaatgaa gttaacccag tggactaaaa tggcaacgat gaaaccattt 420 480 251 tggatccaca ggcgaaaaat gaaacttttg gactaaactg gcgaaaaata aaacttttgg 252 actaaactac atgaactaaa atggotttta actaaatttt aataaccgtt ttaattttat 540 253 aaagagaaaa taaactttac aaaaagcatc gettgtetat tttataaaga ttaaagttac 600 254 ttgcacgttc aaacatatgt tactagatga atcaagagtc atgtacaact ctatgtttag 660 720 255 ataaqqttac tagatgaata tgagttagtc atctataagt ctatacttag aaagttcaaa

RAW SEQUENCE LISTING

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| > 256 tcaatgatt tgtattgaat actgtttgta gttgaattca taaaagcttt gaatactgtt 258 <210> SEQ ID NO: 6 259 <211> LENGTH: 1089 260 <212> TYPE: DNA  | cataaaag |
|---|----------|
| 261 <213> ORGANISM: Helianthus annuus 263 <400> SEQUENCE: 6 264 atcctactac ctcaaacttt atctaattca tcaacacaac ggaggtttgg ttatatttgt 60 265 ttggtccatc caaaaggaca aaaatgacat tcatcttaac aaaaaaaaaa | 24       |

cacctagatt tgaattctca ttgggcccaa tggtctataa ataatgcacc aacccctcag

1020tttaaaccac caccactaca

مرور الأستان مراجعة

```
<210> 2
<211> 371
                                                           return after
<212> PRT
<213> Helianthus annuus
                                                             last amino and on
Met Glu Phe Leu Lys Ala Pro Thr Leu Leu Leu Val Ile Phe Ser Leu 1
                                   15 Ala Ile Cys Ser Pro Ile Ser Ala
                 10
Gln Asn Lys Gly Gly Tyr Trp Pro
                                                                             line
           Ser Trp Ala Gln Asp Phe Leu Pro Pro Ser Asn Ile Gln Thr Ala Tyr
                                                                             ard
                                45 Phe Thr His Val Tyr Tyr
Ala Phe Leu Ser Pro Asn Asn Val Thr Phe 50
                                                           55
                  Gln Phe Asp Val His Arg Thr Thr Ala Ser Ala Leu Asn Ser Phe Wiew
                                                           80 Thr Ala Leu
                                        75
                                                                           last amin
Asn65
His Gly Lys Asn Pro Pro Val Lys Thr Leu Phe Ser Ile
                  95 Gly Gly Ser Ala Gly Val Lys Gln Leu Phe Ser Lys
                                                         110
                                        105
Leu Ala Ser
                    100
                                                                           number
Pro Gly Ser Arg Ala Ala Phe Ile Arg Ser Thr Ile Gln Val Ala 115
                          Arg Asn Tyr Tyr Phe Asp Gly Ala Asp Leu Asp
                  125
Trp Glu Tyr Pro Glu 130
                                       135
Thr Gln Thr Asp Met Asn Asn Phe Gly Leu Leu Leu Asp Glu Trp Arg145
                                  160 Val Ala Val Asn Asn Glu Ala Thr Ser
                  155
                                                          170
Thr Gly Lys Pro Arg Leu Leu
                                       165
       Leu Ser Ala Ala Thr Arg His Glu Pro Glu Val Arg Asp Asn Gly Val
175
                                               Ala Lys Tyr Pro Val Ala Ser
                                     190
180
                   185
                                     195
                                                           200
Ile Asn Lys Asn Leu Asp Gly Ile Asn
               Ala Met Cys Tyr Asp Tyr His Gly Pro Trp Thr Pro Asp Ala Thr Gly
                                                        Ala Pro Ala Ala Leu
                                     220
                  215
Tyr Asn Pro Asn Gly Ser Leu Ser Thr Ser Asn225
                                                           230
                  240 Gly Leu Gln Ser Trp Ile Ser Ala Gly Ile Gln Arg Gln Lys
                                       250
Leu Val
                    245
Met Pro Leu Tyr Gly Trp Thr Trp Lys Leu Lys Asn Pro Ser
                 270 Val Asn Gly Ile Gly Ala Pro Ala Ala Gly Ile Gly
                                       280
Pro Gly Asn Glu 275
Gly Ala Met Leu Tyr Ser Glu Val Gln Gln Phe Asn Ala Gln Asn Asn
                                     Ala Arg Val Val Tyr Asp Thr Gln Thr Val
                   300
295
                                        310
Ser Tyr Tyr Ser Tyr Ser305
320 Gly Thr Thr Trp Ile Gly Tyr Asp Asp Val Asn Ser Val Gln Arg Lys
                                     335 Val Gln Tyr Ala Lys Ser Leu Asn
                   330
Ile Gly Gly Tyr Phe Phe Trp Thr
                                      340
                                                           345
           Ala Val Gly Asp Gln Asp Trp Lys Ile Ser Arg Leu Ala Ser Gln Thr
350
                                             Trp Thr Ala
                                     365
355
```

Please make similar edits to Segr. 4-6, too-same format even VERIFICATION SUMMARY

PATENT APPLICATION: US/09/923,844

DATE: 08/16/2001 TIME: 12:54:03

Input Set : A:\Seqlist.txt

Output Set: N:\CRF3\08162001\1923844.raw

L:12 M:270 C: Current Application Number differs, Replaced Current Application No

L:12 M:271 C: Current Filing Date differs, Replaced Current Filing Date

L:177 M:252 E: No. of Seq. differs, <211>LENGTH:Input:371 Found:352 SEQ:2

L:236 M:252 E: No. of Seq. differs, <211>LENGTH:Input:97 Found:80 SEQ:4
L:256 M:334 W: (2) Invalid Amino Acid in Coding Region, NUMBER OF INVALID KEYS:13

L:256 M:252 E: No. of Seq. differs, <211>LENGTH:Input:849 Found:720 SEQ:5

L:280 M:334 W: (2) Invalid Amino Acid in Coding Region, NUMBER OF INVALID KEYS:13

L:280 M:252 E: No. of Seq. differs, <211>LENGTH:Input:1089 Found:960 SEQ:6